



PC SYSTEMS NEWS

■ NEW PCM MEMORY PROMISES PC STORAGE BOOST

A group of computing industry heavyweights have teamed up to develop phase-change computer memory (PCM), which promises to improve dramatically the speed and storage density in next-generation PCs.

The development programme sees IBM join forces with memory giant Infineon and non-volatile storage firm Macronix in a bid to produce PCM-based memory commercially. In contrast to conventional memory, which captures data as an electrical charge, the new technology achieves data storage by changing the state of a special material from an amorphous to a crystalline structure.

Although PCM development is in its early stages, the technology is already demonstrating its potential to deliver high-speed, high-density data storage to forthcoming PCs. PCM also has the advantage of being able to retain data even when the power is turned off. IBM states that PCM could be used in a wide variety of computers ranging from enterprise-class servers to consumer electronics devices.

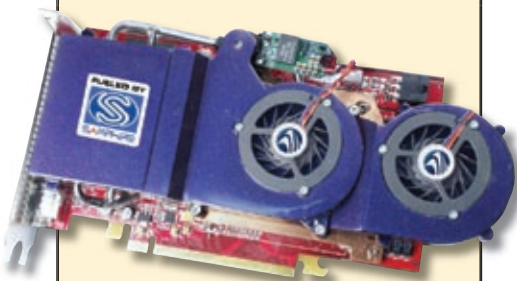
■ GAMERS TURN TO LIQUID METAL FOR ULTIMATE COOL

Graphics hardware firm Sapphire Technology claims it can offer gamers the ultimate in cool PCs after unveiling a liquid metal cooling technology dubbed Blizzard.

According to the company, the system relies on non-toxic, non-flammable liquid metal that is 65 times more thermally conductive than water. Blizzard-based graphics cards require no user intervention, no reservoir and no refilling.

Sapphire explained that its Blizzard-cooled graphics cards have a low-profile design and use only one additional PC slot. The use of an electromagnetic pump means the boards have no internal moving parts, consume less power and are almost silent, according to Sapphire.

The hardware has 16 parallel pixel pipelines, 256MB of GDDR3 memory and a PCI Express interface. First in the Blizzard range will be the Sapphire Blizzard Radeon X850 XT and Blizzard Radeon X850 XT Platinum Editions, which are due to ship in July.



REVIEW DESKTOP PC

MESH Matrix Titanium Dual X2

RATING ★★★★★

PRICE £1,175 inc VAT

SUPPLIER Mesh 08700 464747

DETAILS www.mesh.co.uk



New technology is expensive as a rule, but there are exceptions. Mesh's Matrix Titanium Dual X2 is one, providing an AMD Athlon 64 X2 4200+ dual-core processor in an averagely priced PC.

The X2 4200+ has two 2.2GHz cores, each with 512KB of cache memory. As with all dual-core chips, for the X2 4200+ to work efficiently it needs to run multithreaded applications or perform two tasks simultaneously – see our AMD Athlon 64 X2 4800+ review on page 50 for more information.

Our video-encoding test is multithreaded, which explains the Matrix Titanium's very high *Shopper* application benchmark. However, when we ran the tests again while encoding an MPEG2 video in the background it achieved excellent scores in both tests, with 155 in our benchmarks and 57 per cent of the video encoded.

You may think that Mesh must have scrimped and saved on the other components, but it hasn't. The processor is backed up by 1GB of PC3200 DDR memory and a 256MB ATI Radeon X800XL graphics card, so it's great for games and standard desktop applications. Thanks to the dual-core processor you can even play games while performing an intensive background task such as encoding a video.

The Matrix Titanium Dual X2 uses an Asus A8N nForce 4 SLI motherboard, so you could run two high-end graphics cards in tandem. The motherboard also has all the advantages of the nForce chipset including dual network interfaces and high-definition eight-channel audio, which is catered for by the Creative Inspire 7700 speakers.

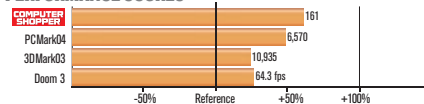
The 300GB hard disk provides lots of storage space, and the 16X Sony DVD drive can write to all formats including high-capacity double-layer discs.

Only the ViewSonic VP171B-2 17" LCD monitor lets the system down, with poor vertical viewing angles and colour. It's far from terrible, though, and has one digital and two analogue inputs. A Logitech wireless keyboard and mouse round off the system. They're comfortable to use and the mouse comes with a recharge cradle.

The PC is housed in Mesh's new case, which we don't like much. Structurally it's fine, but the silver on the front looks cheap. Don't let that put you off, though, as this is an amazing system for the money. As more applications are written for dual-core processors, it can only get better.

David Ludlow

PERFORMANCE SCORES



✓ Fast performance; good choice of components

✗ Monitor has poor vertical viewing angles

SPECIFICATIONS AMD Athlon 64 X2 4200+ processor, 1GB memory, 300GB hard disk, 256MB ATI Radeon X800 XL graphics, DVD+-RW

HOTLIST MEDIA CENTER PC

HI-GRADE DMS II

RATING ★★★★★

PRICE £1,090 inc VAT

SUPPLIER Hi-Grade 020 8532 6111

DETAILS www.higrade.com



Hi-Grade's DMS II might look like a hi-fi component, but it's actually a Media Center PC. It's well designed with a range of interfaces for connecting to a monitor or TV, including the standard PC outputs, S-video and composite video in, eight-channel coaxial audio out and TV and radio antenna jacks. It has dual analogue tuners, so you can watch one channel while recording another or record two different channels at the same time. A 250GB hard disk provides enough storage for your TV recordings, music and photos.

It also works well as a standard PC, although the Radeon X300 graphics card can't handle many games. However, this PC really belongs in

the lounge under the TV. If you want a PC that combines your various media, the DMS II is an excellent option; it's a great combination of computing power, media capabilities and solid build quality.

SPECIFICATIONS Intel Pentium 4 550 processor, 512MB memory, 250GB hard disk, 128MB ATI Radeon X300 graphics, DVD+-RW. Part code DMS II 3400

REVIEW MEDIA CENTRE PC**SONY
VGC-V3M**

RATING ★★★★★

PRICE £1,310 inc VAT

SUPPLIER www.misco.co.ukDETAILS www.sony.co.uk

Unlike many systems, Sony's VGC-V3M feels like a cohesive unit rather than a collection of parts. This is partly down to the design, which binds the screen, PC and speakers into a single attractive body, but the feeling of unity extends to the wireless keyboard and mouse, both of which are responsive and comfortable. It even extends to its function, as it's designed to replace your PC, TV, DVD player, hi-fi and VCR in one attractive box.

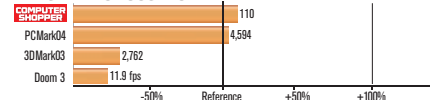
The VGC-V3M is built with both desktop and notebook parts, making it smaller than a traditional desktop PC while maintaining desktop performance. Its Intel Pentium 4 3.2GHz processor and 512MB of memory make for a decent core specification, although 1GB of memory would have given the system more leeway for future applications. A 128MB nVidia GeForce FX Go 5700 card handles the graphics. This was intended as a notebook graphics card and isn't fast enough to play the latest games at high resolution, but it can cope with casual gaming at lower resolutions. Most people will find this a happy medium between 3D power and noise – a more powerful graphics card would require louder cooling fans – as this PC is designed for a quieter environment than an office.

The analogue TV tuner is set up automatically the first time Sony's media centre software starts. With an aerial plugged in it detects all the terrestrial TV channels. A 250GB hard disk provides plenty of storage for all your recorded TV, music and photos, and you can back up your favourites to DVD using the double-layer recorder. All the media functions can be operated using the supplied remote control.

The 17" widescreen LCD's reflective coating produces bright colours, high contrast and a sharp image, making it great for watching DVD movies. Unusually the integrated stereo speakers, with a sub-woofer in the stand, are punchy and reasonably loud. If you want full surround sound, though, you'll have to buy a separate 5.1 system.

What you gain in designer looks and compact design, you lose in flexibility. Apart from a free memory slot, there's little room to upgrade the VGC-V3M. We would also have liked to see a digital TV tuner rather than an analogue one. This is a high-quality, good-looking PC, but its specification falls just short of our expectations for the price.

David McKinnon

PERFORMANCE SCORES

✓ High-contrast widescreen; fully integrated system

✗ Expensive

SPECIFICATIONS Intel Pentium 4 3.2GHz processor, 512MB memory, 250GB hard disk, 128MB nVidia GeForce FX Go5700 graphics, DVD+/-RW, 17" LCD. Part code VGCV3M.CEK

HOTLIST DESKTOP PC**DELL
Dimension 5000**

RATING ★★★★★

PRICE £1,099 inc VAT and delivery

SUPPLIER Dell 08709 075818

DETAILS www.dell.co.uk

Dell is the biggest producer of desktop PCs in the world, and this system based around the new BTX form factor shows why. The new design has better airflow using a single large fan and is noticeably quieter than older ATX systems. A great set of matched peripherals includes a 5.1-speaker system and a feature-packed 19" monitor.

The Dimension 5000's Pentium 3.4GHz processor combined with 1GB of RAM tore through our tests, achieving an overall score of 126 in our benchmarks. Gaming performance will impress all but the most hardcore gamers with a sturdy 48.4fps in Doom 3.



This is a powerful and desirable system, with everything you need to play games, edit video and burn your own DVDs. Its only downside is a fairly mean one-year collect and return warranty.

SPECIFICATIONS Intel Pentium 4 550 3.4GHz HT, 1GB RAM, 250GB hard disk, 256MB nVidia 6800 graphics, DVD+/-RW DL and DVD ROM drives, 19" LCD. Part code PPUK5-D04507R

**BYTE
SIZE!**

Our round-up of the best new gadgets and software

**WACOM
Volito 2**

RATING ★★★★★

PRICE £38 inc VAT

SUPPLIER www.savastore.comDETAILS www.my-volito.com

Wacom's entry-level Volito 2 A6 tablet is perfect for those who want finer control over photo editing and computer artwork. It's easy to install: just run the installation CD and connect the tablet to a spare USB port.

Considering it's so cheap, the Volito 2 works very well. It's pressure sensitive, so you can vary the thickness and intensity of the colours you put down. The tablet responds well to the pen, providing smooth movement across the whole screen. The pen has two user-definable buttons, which you can set to specific functions, such as right-click. For this price it's a bargain and perfect for anybody who is new to using a tablet.

David Ludlow

My Summer Of Love

RATING ★★★★★

PRICE £15 inc VAT

DETAILS www.play.com

Mona (Natalie Press) is lonely and sick of living in the village pub-cum-church with, as she puts it, "me, me brother and God". So when she encounters the posh and equally lonely Tamsin (Emily Blunt) on the moors, the two strike up a curious but intense relationship. A glorious summer ensues as the girls experiment with drugs, sex and, well, life; but summer starts to draw to an end when Tamsin decides to test the strength of Mona's brother's (Paddy Considine) born-again faith. *My Summer Of Love* is a woozy, gorgeous film, shot with warmth and filled with raw emotion, and director Pawel Pawlikowski draws astonishing performances from all three leads. The disc includes a trailer and interviews with Pawlikowski and the cast.

Chris Miller



BYTE SIZE!



Our round-up of the best new gadgets and software

AVERMEDIA AverTV Box7

RATING ★★★★★

PRICE £59 inc VAT

SUPPLIER www.mediaatlantic.com

DETAILS www.avermedia.com

AverTV's Box7 plugs into a monitor through a D-sub analogue connection and turns it into a standard TV, while a VGA input lets you use your PC too. The quality was very good and tuning was quick, although we couldn't reorganise the channels so that BBC1 was on channel one and so on.

It supports resolutions up to 1,280x1,024 and we were impressed with the picture quality. Its S-video, composite and stereo inputs mean you can also connect a DVD player. While the box outputs a progressive signal for the monitor, it unfortunately doesn't accept a progressive input.

A remote control lets you operate your TV from the sofa, and you can enjoy picture-in-picture when using a PC. Despite a couple of niggles, this is a good product.

David Ludlow



HIPER Type R 480W

RATING ★★★★★

PRICE £55 inc VAT

SUPPLIER www.casotech.co.uk

DETAILS www.hipergroup.com

When trying to make a PC silent, it's important to remember the power supply, as its fan can be deafening. Hiper's Type R 480W supply is silent and outputs enough power to cope with demanding systems.

Its silver case is attractive and the eight Molex power connectors are well designed, with finger grips on both sides to make plugging and unplugging devices very easy.

It has two Serial ATA connectors, one floppy and one 12V for the motherboard. All that's missing is PCI-E graphics, but you usually get a converter when you buy a new graphics card. Aside from this, it's a great silent choice.

David Ludlow



REVIEW DESKTOP PC

WATFORD Aries PowerXS 6520 SLI

RATING ★★

PRICE £1,800 inc VAT

DETAILS www.savastore.co.uk

Until now nVidia's SLI graphics interface has been limited to systems with AMD processors. NVidia has tailored a version of its nForce4 SLI chipset for Intel PCs. The Aries PowerXS 6520 SLI is the first PC we've seen to combine the power of Intel's Pentium 4 chip with two graphics cards in SLI mode.

Watford has used the 3.6GHz version of Intel's Pentium 4 processor and 1GB of PC4200 memory, which means the PowerXS has an impressive overall performance and is especially formidable in media applications such as video editing. However, you'll need to archive your footage reasonably often as the 160GB hard disk is stingy.

There are two GeForce 6800GTs working in tandem, so it's no surprise that the PowerXS has blistering games performance. At the monitor's native resolution of 1,280x1,024, the graphics system flew through our 3D tests. The SLI system runs games at very high resolutions without a notable drop in frame rate. As the monitor won't go above 1,280x1,024, though, you could shave a big amount off the price without losing performance by forgoing SLI in favour of a single graphics card.

Sharp's LL-191 19" display is a strange match for the PowerXS. Aside from the resolution issues mentioned above, the LL-191 accepts only an



analogue input, and while its auto-adjust function produces a sharp, interference-free image, we would expect any LCD shipped with such an expensive system to have a digital input. Its pixel refresh rate of 16ms is relatively slow, too, given the PowerXS's ability to pump out incredible frame rates

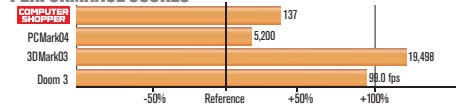
For such a powerful PC, the CoolerMaster case's interior is surprisingly uncluttered. This is largely because Watford employs a liquid-cooling system. On full blast the radiator fan at the back of the case produces a low-volume whine, but you can turn it down when you're not taxing the PC.

Sound output is vital to a high-end system. The PowerXS comes with Creative's SBS 560 5.1 surround-sound system. While this produces punchy sound at low volume, crank it up and the light satellite speakers begin to struggle. A more robust 2.1 system would be preferable.

The PowerXS is an accomplished performer and will not disappoint in either gaming or creative applications. However, the specification is unbalanced: it should either come with a higher resolution monitor or forgo SLI and cost £300 less.

David McKinnon

PERFORMANCE SCORES



✓ Blistering 3D performance; manually adjustable cooling

✗ Far too expensive

SPECIFICATIONS Intel Pentium 4 3.6GHz processor, 1GB PC4200 memory, 160GB hard disk, two 256MB nVidia GeForce 6800GT graphics, DVD+/-RW

HOTLIST DESKTOP PC

MESH Matrix Vector Blast

RATING ★★★★★

PRICE £599 inc VAT

SUPPLIER Mesh Computers

08700 464747

DETAILS www.meshcomputers.com

The Matrix Vector Blast is a well-balanced PC with well-chosen parts and peripherals. The system is based around a versatile Asus motherboard. There's also a decent amount of storage on offer for the money, with a 160GB hard disk and a double-layer DVD writer.

The Logitech keyboard and mouse are both well made, as is the stereo speaker set from Creative. The only minor downside to this system is its 15" monitor, which limits you to a maximum resolution of 1,024 x 768.

In our benchmarks its Athlon 64 3000+ processor and 512MB of RAM produced a solid



score of 89 points overall. Gaming performance is not great, but you get an acceptable frame rate in Doom 3 with the detail levels reduced.

SPECIFICATIONS AMD Athlon 64 3000+ processor, 512MB RAM, 160GB hard disk, 256MB nVidia GeForce FX 5700LE graphics, DVD+/-RW DL, 15" LCD



CHOOSING A...

PC

SYSTEM

Follow our simple step-by-step guide to buying a PC and get the perfect system for your needs

1 The minimum specification of PC we recommend, shown in grey opposite, is a good starting point when working out your ideal system. This PC would cost around £500 and is perfectly capable of running everyday office, multimedia or education software, as well as doing anything on the internet. But it's an unexciting PC. It will be able to play DVD movies, but they won't sound too impressive and games are a total no-no.

2 If you're interested in editing your own movies, you'll need a DVD rewriter. Make sure that you get one that supports both +R and -R formats. It's also worth getting one that will write double-layer discs, as this lets you squeeze twice as much information on a DVD.

There's not much difference in price between the different drive speeds, so we recommend getting one that can write DVD+R and DVD-R at 16X, and DVD+R DL at 4X. If you'll be doing a lot of video projects and disc writing, upgrade to a 200GB hard disk as a minimum.

3 Interested in games? Then upgrade to 512MB or 1GB of memory and a 200GB disk and get a graphics card. Budget cards based on the GeForce FX 5200 graphics processor or Radeon 9800 will cope with this year's games, but to play next year's just as smoothly (and enjoy gorgeous graphics today) you'll want anything up to a GeForce FX 6800Ultra or Radeon X850XT. You'll also need a faster processor.

4 Which faster processor? Well, faster AMD processors such as the Athlon 64 3400+ are good value. An Athlon FX-based system will cost £300 more but offers much better performance. The alternative is a PC based on Intel's Pentium 4 processor. These are also pricier, but many people feel reassured by the Intel brand, and the fastest P4s always do well in our performance tests.

5 If you're really not interested in games you can definitely live with integrated or cheap graphics, but there are plenty more reasons to upgrade the memory, hard disk or processor. If you'll use your PC for serious DTP, music or photo editing you need the same kind of processor, memory and disk as

for games. For video editing, consider getting two hard disks, perhaps in a RAID array.

6 A quality sound system will enhance all manner of PC activities. To hear the surround soundtrack of a DVD at its best, you'll need a quality 5.1 speaker system. Games can also use such a system to throw sound effects around you. If you're interested in neither games nor DVDs (or don't want to trail wires all around the room), go for a quality stereo pair with a sub-woofer to boost the bass instead.

If you're interested in music or want better-quality sound, you'll need to invest in a dedicated sound card. As well as providing enhanced sound, such as Environmental Audio eXtension (EAX), which tweaks the acoustics to make sound appear to be playing in different environments, you'll get higher-quality outputs and more inputs.

7 Although 15" LCD screens save on desk space and look stylish, the low resolution (1,024x768) and small display size isn't ideal. A 17" LCD will cost around £50 more but has a much better resolution (1,280x1,024) and is easier on the eye. It makes it simpler for those who want to edit large photos, documents or spreadsheets, run two applications side by side, or just look important. 19" LCDs already cost less than £250 and have a much larger display.

FILL IN YOUR SPECS HERE

(Recommended minimum in grey)

PROCESSOR: Athlon 64 3000+

MEMORY: 256MB DDR

HARD DISK: 120GB

STORAGE: 52xCD-RW/16xDVD combo drive

SOUND: Integrated

SPEAKERS: Stereo

GRAPHICS: Integrated

MONITOR: 15" LCD

EXTRAS: 56K modem

CONNECTORS: 4x USB2, network

SOFTWARE: Windows XP Home Edition

BASICS: Keyboard, mouse, case

8 The standard set of connectors can be usefully improved with extra USB2 ports, to which most run-of-the-mill PC gadgets attach, and a FireWire port, for fancy gadgets including digital video (DV) cameras.

9 Windows XP Home Edition is preinstalled on most new PCs. Any extra software bundled should be assessed critically. It may be that you'll never actually use it. But equally, you may happen across a PC that includes software you'd otherwise have paid for, in which case you'll almost certainly save lots of money by having it preloaded, although you won't get technical support included.

10 Money left over? A TV card will let you watch television on your PC screen plus record programmes to your hard disk, or capture analogue video from a camcorder. Rather than splashing out on an extended warranty, pay extra to get the make of PC your friends or colleagues swear by.

